

Duct Sealing Requirements upon HVAC or Duct-System Replacement

Statewide Codes & Standards Program

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Overview of Changes

■ Two Proposed Changes

- Verified Duct Sealing Requirement at HVAC Equipment Replacement
- Verified Sealing and R-8 Requirement for Replacement/Added Ductwork

■ Duct Tightness

- 10% of Total System Flow
- Installer Tested at All Sites
- Third-Party Verification

Performance Verification

- Third-Party Verification Required
 - Sampling Procedures
 - HERS Raters
 - Data Collection and Validation Entities

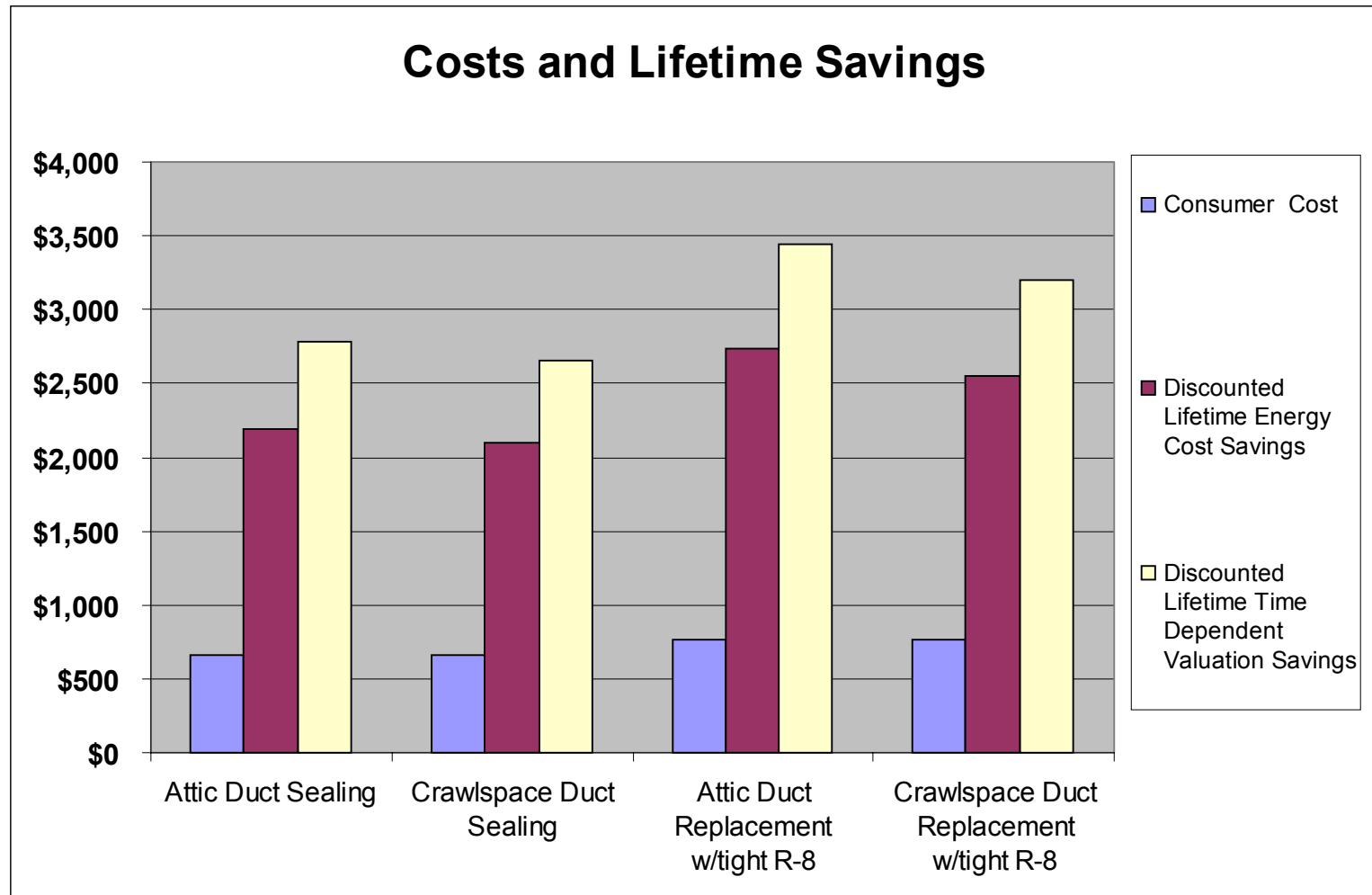
Sealing Alternatives (TO BE CHANGED)

TABLE 1-AA –
ACCEPTABLE ALTERNATIVES TO VERIFIED DUCT SEALING FOR ALTERATIONS

	Duct Insulation + HVAC Measure		HVAC Measure Only	
	Minimum SEER/EER	Minimum AFUE	Minimum SEER/EER	Minimum AFUE
CZ1		90		
CZ2	14 / 13		14 / 13	90
CZ3		90	14 / 12	90
CZ4	14 / 13		14 / 11	90
CZ5		90	14 / 12	90
CZ6	14 / NR		14 / NR	90
CZ7	14 / NR		14 / NR	90
CZ8	14 / NR		14 / NR	90
CZ9	14 / 12		14 / 12	90
CZ10	14 / 12		14 / 12	90
CZ11	14 / 13		14 / 13	90
CZ12	14 / 13		14 / 13	90
CZ13	14 / 12		14 / 12	90
CZ14	14 / 13		14 / 13	90
CZ15	14 / 13		14 / 13	90
CZ16		90		

Note: Duct Insulation requires the addition of insulation having an installed value of R-5 over and above the existing insulation level of the duct system.

Consumer Cost Effectiveness



Statewide Benefits

- Existing vs. New Construction
 - 60% of HVAC Equipment into Existing
 - Higher Baseline Energy Use
- Energy and Peak Demand Savings
 - Potential savings from each year's installations:
200 GWh, 20 million Therms, and 160 MW
- Comfort and IAQ

Assumptions

■ Consumer Analysis

- **15%/15%** Average Initial Duct Leakage
- **30-Year** Measure Life
- Sealing Costs from DEER plus Verification
- Insulation Costs from Owens-Corning

■ Statewide Benefits

- **70%/30%** Attic/Crawlspace Split
- **70%/30%** Seal/Replace Split

Analysis Methodology

■ Energy Savings Analysis

- Micropas applied to 1978 prototype (75% of simulation values)
- AFUE-80/SEER-12 Baseline

■ Time Dependent Valuation

- Hourly Duct Efficiencies and Valuations

■ Peak Demand

- 60% of ASHRAE 152P Estimates

Specific Changes

■ Section 152 of T-24 Standard

- Section 152 (b)1: B => Duct Sealing Requirement; D=> Replacement Duct Requirements

■ ACM Manual

- NEW Section 7.4.4: Procedures for Alterations That Require Field Verification
- Appendix F: 10% vs. 6% Leakage Level

■ Residential Manual